



U.S. Department
of Transportation

Research and
Special Programs
Administration

SYSTEMS MANAGEMENT AND OPERATIONS IN THE PLANNING PROCESS

REVIEW OF THE DES MOINES, IOWA METROPOLITAN AREA

June 2000

David W. Jackson
David Rutyna
Allan J. DeBlasio

Volpe National Transportation Systems Center
Economic Analysis Division

Prepared for

U.S. Department of Transportation
Federal Highway Administration
Office of Metropolitan Planning and Programs

FOREWORD

This paper was prepared by the U.S. Department of Transportation's (U.S. DOT) John A. Volpe National Transportation Systems Center (Volpe Center) for the Federal Highway Administration's (FHWA) Office of Metropolitan Planning and Programs. Mr. David W. Jackson of the Volpe Center's Economic Analysis Division is the principal author. Mr. David Rutyna, EG&G Services, and Mr. Allan J. DeBlasio, the project leader, provided additional support. Mr. Brian Gardner and Mr. Douglas Laird of the Office of Metropolitan Planning and Programs provided the direction for this project. Mr. DeBlasio should be contacted concerning comments on this report at (617) 494-2032.

Systems Operations and Management in the Planning Process

Des Moines Metropolitan Area Summary

Introduction

The John A. Volpe National Transportation Systems Center (Volpe Center) is assisting the Federal Highway Administration's (FHWA) Office of Metropolitan Planning and Programs in assessing the level that management and operations (M&O) aspects of projects and programs are currently involved in the metropolitan transportation planning process. While the Intermodal Transportation Efficiency Act of 1991 (ISTEA) regulations identified M&O as one of nearly two dozen planning factors, the Transportation Equity Act for the 21st Century (TEA-21) places much more importance on M&O benefits and costs in the formulation of plans and programs. The goal of the legislation is improved regional decision making, resulting in the coordinated delivery of products and services that provide safer, more reliable travel.

The FHWA recognizes that there is no single blueprint for managing and operating complex transportation systems throughout the vast variety of United States metropolitan areas. Efforts must be tailored to meet the unique needs of each region. In turn, the region's goals and objectives for operating the system should stem from the consensus of a strong planning process. It is expected that the FHWA will work through the metropolitan planning organizations (MPOs) to lead the delivery of this TEA-21 provision and, once established, to follow its progress.

The Volpe Center team has already studied four metropolitan areas – Columbus, Ohio; Des Moines, Iowa; Portland, Oregon; San Diego, California – to ascertain how these areas are considering M&O within their project development and planning processes. All four of these areas were selected because they are notable as having a very strong regional focus, are deploying a significant level of intelligent transportation systems (ITS), transportation demand management (TDM), and transportation systems management projects that are very operations-intensive projects, and their transportation planning process are seen as progressive. This paper summarizes the findings from discussions with transportation professionals from the Des Moines Metropolitan Area.

Planning Documents

Although not explicitly referenced in many planning documents, M&O are included in various ways within the work and projects cited in the regional planning documents. Available planning documents were reviewed to assess if any analysis of post-deployment M&O were conducted, how M&O issues were being documented, and if there was any indication how much experience and understanding the MPO staffs had with M&O functions. This section describes the findings from the review of the planning documents.

Transportation Improvement Program (TIP) - Fiscal Year (FY) 2000-2002 and draft FY 2001-2003 - The TIP is an annually updated list of transportation projects with limited explanatory text, thus, it is difficult to understand the degree of M&O being included in the planning process based solely on this document. The document lists location, type of work, total cost, and share of sponsorship for projects beginning during the three-year period that are eligible to receive federal funds. The only non-federally funded projects included in the document are those funded by the State Transit Assistance program. The TIP's proposed projects are divided into existing major construction, new major construction, minor construction, preservation, and alternative transportation categories.

The minimal amount of M&O discussed or alluded to in the text relates primarily to transit. Estimated transit costs for general operations, maintenance, administration, and preventative maintenance, as well as installation costs associated with automatic vehicle location (AVL) technology as a transit management system tool are listed in the TIP.

There are 16 different criteria considered by the Project Priority Criteria Committee. No projects are evaluated based on all 16 criteria, but all are evaluated based on the selection criteria assigned to one of the five project categories. Based on the weight assigned each of the criteria within each project category, it can be concluded that congestion improvements are given the highest consideration in the TIP project selection process. While all criteria are deemed important, it is possible to rank the criteria by subject in the following order: (1) congestion, (2) safety, (3) facility existing condition, (4) environmental impacts, (5) transportation efficiency, (6) funding / financial. These subjects are broken down into the 16 selection criteria.

- | | |
|--|--|
| 1) Level of service (LOS) before-after | 8) Air quality benefits |
| 2) Network parameter (vehicle hours of travel) | 9) Accidents |
| 3) Existing traffic volume (delays or average daily traffic-ADT) | 10) Accident benefit/cost analysis |
| 4) Total volume | 11) Functional classification |
| 5) Projected future traffic volume (ADT) | 12) Existing structure condition |
| 6) Improved LOS | 13) Surface condition |
| 7) Congestion reduction | 14) Facility continuity |
| | 15) Mode efficiency (energy consumption) |
| | 16) Other funds (local match) |

Regional Transportation Plan (RTP) "Horizon Year 2020" Transportation Development Report (Oct 1994) - The "Horizon Year 2020" report uses 1990 as a base year and does not cover TEA-21 planning factors such as operational efficiency and cost effectiveness. While there is no discussion of M&O as a specific topic, the document does reference M&O in its management systems and financial analysis sections. The Des Moines Area Metropolitan Planning Organization (DMAMPO) has been identified as the lead agency or assigned a significant support role in a number of transportation system activities listed in the RTP, indicating some involvement with M&O issues. As part of the RTP, the DMAMPO has been assigned the responsibility of establishing performance measures for intermodal management strategy and monitoring freight movement operations. The RTP also includes associated costs for projects. Associated costs cover engineering (14% of construction costs), maintenance (90% of pre-project maintenance costs, rising to 94% after project completion), and administration (7% of construction costs).

The **Horizon Year 2025 Plan** under development proposes to specifically address operations and maintenance costs and discusses development of a Congestion Management System (CMS) plan that will include operational management strategies. The 2025 Plan also includes a policy to limit new capacity, which favors better management of the existing system, and pushes operations into project discussions. By linking land use decisions to access management strategies, the DMAMPO, which is the *ad hoc* regional planning agency, has increased its impact on the transportation network, affording it greater control of how the projects are reviewed, funded, and programmed. The MPO reported difficulty in obtaining financial figures and traffic data from some local agencies in preparation for the 2025 RTP, indicating it may be more difficult to acquire a greater level of data about M&O impacts.

Des Moines Metropolitan Area Intelligent Transportation Systems Strategic Plan (December 1997) - The MPO contracted with the Center for Transportation Research and Education at Iowa State University to develop the ITS Strategic Plan. At the time of the plan's completion, Des Moines was the smallest urban area to develop an ITS strategic plan. The plan makes recommendations for deployments and actions designed to improve freeway and surface street traffic flow, provide better traveler information, and to make transit more efficient and convenient. The plan alludes to the DMAMPO's development and on-going maintenance of the geographic information system (GIS) database of signal locations. The database is seen as the starting point of the MPO's inter-jurisdictional signal coordination program, important as mitigation for the impacts from the I-235 Reconstruction Project. The ITS Strategic Plan identifies many of the MPO responsibilities for the ITS program, including the coordination of traveler information and data sharing activities and varied support for the deployment. The document also charges the DMAMPO with updating models to include system improvements, as well as conducting an annual status check and evaluation of ITS Strategic Plan projects. The ITS Strategic Plan does not, however, discuss the post-deployment phase, when M&O is most critical. The link between the MPO's role as ITS lead and any involvement with operations is not mentioned either.

Discussion of M&O by Agency

Representatives from the MPO, the state DOT, and the regional transit agency were contacted for this study on M&O. Each agency has varied perspectives on what functions are included within M&O, the proper role of the MPO in M&O analysis and activities, and if the Federal Government should require M&O analysis in the planning process. This section discusses these and other thoughts regarding M&O activities that are specific to each public agency represented in this review.

MPO – Des Moines Area Metropolitan Planning Organization

The DMAMPO's jurisdiction consists of thirteen municipalities and three counties (Dallas, Madison, and Polk) in central Iowa. Additionally, the DMAMPO provides support to the Central Iowa Regional Transportation Planning Alliance (CIRTPA), which coordinates planning and programming efforts for the Iowa Department of Transportation's (Iowa DOT) District 11.

The primarily rural CIRTPA region encompasses all or part of eight counties and surrounds the DMAMPO area.

The DMAMPO has evolved from two employees within a City of Des Moines agency to an independent body staffed with nine persons, responsible for the development of the Unified Planning Work Program (UPWP), TIP, RTP, and ITS Strategic Plan of the metropolitan area. The DMAMPO also prepares a Transportation Capital Improvement Program (TCIP), which is a complimentary document to the TIP, based on the capital improvement programs of individual area governments. The TCIP includes state and locally funded projects for comparable years of the TIP. Together, the TCIP and TIP comprise the complete picture of all transportation infrastructure investment occurring in the Des Moines Metropolitan Area.

The DMAMPO representative asserted that the Des Moines Metropolitan Area is trying to be progressive and maintained that the working relationships among agencies developed through the MPO process and the area's manageable size make it possible to accomplish regional goals. The MPO official interviewed stated that the DMAMPO does not presently have any responsibility for operating, managing, or maintaining any elements of the area's transportation system, nor does the interviewee foresee MPO involvement in any direct M&O activity in the near future. The MPO's role was expressed as providing a regional vision for the metropolitan area, bringing area governments together to collaborate on various common issues, including M&O-related concerns, and creating fiscally constrained plans that set performance objectives for the area's transportation system. These performance objectives include achieving level of service "D" or better on the highway system, a ten percent reduction in single occupancy vehicles, and restricting highway expansion beyond existing right of ways.

The respondent considers the MPO to be a strong advocate of ITS and of M&O, and supports maintenance and enhancement of the existing transportation system. The MPO official believes that ITS and the M&O of the transportation system are critical to this area's (and any area's) ability to fulfill the intent of the ISTEA and TEA-21 legislation.

ISTEA, TEA-21 and the re-write of the metropolitan planning regulations helped DMAMPO get out from under the scope of the City of Des Moines and empowered the MPO to be a freestanding voice for the metropolitan area. DMAMPO has since been successful bringing additional key players into regional discussions, including transit, the airport, and small municipalities, who had previously been represented only through their county governments. Through the forum provided by the MPO, area governments have come together to look at issues from a metropolitan perspective. ISTEA and TEA-21 have raised the consciousness of M&O in the area. He added that the legislation has helped change the emphasis of the area's transportation planning process from building and adding capacity to maintaining and enhancing the existing system.

State DOT –Transportation Center for Central Iowa, Iowa Department Of Transportation

The Central Iowa Transportation Center is the Iowa DOT district responsible for the four county Des Moines Metropolitan Area. The Iowa DOT has jurisdiction for the interstate system, as well

as other state roads. The interstate system is the Iowa DOT's primary focus in this metropolitan area.

Iowa DOT personnel and equipment perform most of the maintenance functions of this system, but the agency does contract with several local agencies for some maintenance activities along the state routes, especially traffic signal management and operations. Within the City of Des Moines, the Iowa DOT depends heavily on the City's Traffic and Transportation Department to manage signals that are the Iowa DOT's responsibility. The Engineering Division of the Iowa DOT is hiring a traffic engineer for its transportation center in Ames, who will be more closely involved in traffic signal operations for the entire state system.

The Iowa DOT representative interviewed sees the MPO's primary role as offering a forum for the transportation staffs at the cities and the Iowa DOT to communicate on a monthly basis. At these MPO meetings, the Iowa DOT and other agencies' staffs can meet face-to-face, discuss common problems, and work towards resolutions of those problems. The representative added that DMAMPO does critical work involving the modeling of the area's transportation system, developing the long-range plan, and coordinating these activities among the local governments and the Iowa DOT. The interviewee commented that the DMAMPO has done well coordinating transportation funding programs with local governments' needs. The transportation professional did not believe that the DMAMPO, as presently constituted, was funded, staffed, or otherwise equipped to adequately perform M&O functions or conduct detailed M&O analysis.

Transit –Des Moines Metropolitan Transit Authority (MTA)

The MTA is an individual agency created through a 1975 intergovernmental agreement (IGA) between the Cities of Des Moines, West Des Moines, Clive, Windsor Heights, and Urbandale. Additional contracts exist to provide service to two municipalities not covered by the IGA. The agency utilizes 100 buses on 23 fixed routes and manages rideshare and paratransit programs to serve the service area population of approximately 200,000. The transit representative interviewed reported that the MTA has no formal definition of management or operations and added that the agency would agree with any definitions of M&O that were endorsed by the Federal Transit Administration.

The MTA's fiscal budget is divided between capital and operating costs. In recent years, a larger portion of the agency's overall budget has been appropriated towards capital costs, as the agency has taken on more maintenance projects and now classifies preventative maintenance as part of the capital budget. Previously, preventative maintenance activities were funded through the operating budget.

An assessment of the service costs is developed each year, from which a cost allocation plan for each city included in the IGA is developed. Direct costs and capital depreciation are figured in to the contracts for the additional municipalities that receive MTA services. All funds received from the cities are placed in the operating budget, which resulted in a \$100,000 operating surplus in the Fiscal Year 1999. Operating surpluses are redirected to the capital budget.

The interviewee cited the budget as the principal determinant of staffing levels, and further submitted that the agency is resigned to sometimes having fewer staff than it would prefer. M&O staffing levels are not determined for each project, nor are thresholds based on the number of buses or routes used to determine staffing levels. The MTA looks at M&O in the context of addressing service issues, rather than to determine proper staffing levels. Staffing levels do not increase as long as the service level is satisfactory, even if staffing is below recommended levels. The respondent did note that the M&O of AVL technology have consumed a lot of resources at the MTA.

No long-term M&O analysis is performed at the MTA. The MTA does conduct short-term M&O planning and analysis, although there is no formalized process. Short-term planning and analysis, and other M&O concerns are addressed through *ad hoc* discussions within the MTA, some of which occur because of staff requests to management. The respondent reasoned that because of the agency's limited staff resources, formal M&O analysis is cumbersome and not necessarily appropriate, though M&O concerns must be addressed. The interviewee doesn't foresee the MPO becoming involved with the short-term M&O issues of the MTA, such as staffing for efficient M&O at the agency.

The role of the MPO in transit operations is a hotly debated issue in the Des Moines Metropolitan Area. The MTA representative concluded that MPO involvement in transit operations could possibly be beneficial to metropolitan areas that have more than one transit agency and coordination of operations is needed, which is not the case in the Des Moines area. The representative suggested that short-term impacts and issues are best reviewed and addressed by people who are familiar with transit operations, and who understand transit passengers' needs. DMAMPO is currently involved with long-range transit planning, and looks at how transit fits in to the area's transportation planning as a whole. The MTA finds this level of MPO involvement to be acceptable.

General Findings from Metropolitan Area Interviewees

A majority of the respondents from the metropolitan area were in agreement on a number of items related to M&O. Much of the key information yielded by the interviews relates to data, committees, federal requirements, and successful actions and are included in subparts to this section. The first part addresses what data are being collected, how they are shared and used, and what additional data planners and operators need to better analyze M&O. The next part highlights area committees, most often led by the DMAMPO or the Iowa DOT, which have addressed M&O concerns at meetings. Opinions of area transportation professionals regarding the possible creation of a federal requirement to analyze M&O are then discussed. Lastly, there are several successful actions that appear to have worked well to increase M&O consideration in the metropolitan area and could serve as models for other metropolitan areas to follow.

Data

A feeling persists in the Des Moines Metropolitan Area that data generation and collection are not major concerns, although there are some additional types of data that would be useful to

operators and planners. Greater problems seem to exist with regard to data sharing and agencies having the available resources to analyze data. This section will highlight data issues affecting the MPO, the Iowa DOT, the transit agency, or issues impacting all the agencies in the metropolitan area.

DMAMPO

- Uniform statewide collection procedures for speed and travel-time data have been developed to simplify project prioritization.

The DMAMPO staff performs speed data and travel-time data counts bi-annually, which can now be done by one person with a global positioning system unit. The speed data and travel-time counts are done on selected corridors using the Iowa DOT Technical Committee's standardized data collection process, which mirrors the process used in the Omaha and Quad Cities areas. The Congestion Mitigation and Air Quality Improvement Program (CMAQ) was the basis for this standardization. Because Iowa is an air quality attainment state, the Iowa DOT retains CMAQ money and allocates the funds out on an application scoring process. DMAMPO has worked with the Iowa DOT and other agencies to standardize the travel data collection methodology so that projects can be evaluated fairly from one Transportation Management Area (TMA) to another.

- The MPO promotes improved data sharing capabilities as one of the principal benefits of ITS.

Promoting and championing ITS is an official policy adopted by the MPO policy board. Highlighting the benefits of ITS, such as the enhanced ability to share information, are central to this policy. Better data sharing would reduce operating agencies' needs for additional data to improve their M&O efficiency. The MPO official reported that improved data sharing capability is one of the benefits that the MPO emphasizes most to elected officials, emergency response agencies, and other local and state agencies. The MPO has challenged the Mayor of Des Moines to promote the sharing of information, particularly with regard to parking and transit information. The interviewee pointed out that parking garages continue to be built in downtown Des Moines, yet there is frustration among public officials that "no one is riding the buses."

- Project data must be shared with the MPO so planners can model improvements.

The DMAMPO needs access to data that can help measure what effect improvements have had on the transportation system. The City of Des Moines received a \$4 million CMAQ allocation from the Iowa DOT that is being used to coordinate over 90 signals in downtown Des Moines. The signal coordination project will be tied in to parking availability, variable message signs (VMS), and traveler information. The MPO respondent expressed that DMAMPO needs access to this data to conduct evaluations of the project. He added that information relative to improvements that are made to parts of the transportation system should be plugged into the modeling process to accurately measure how the total system is working.

- There are external and internal factors that have limited the MPO's ability to collect and use data.

The DMAMPO official interviewed stated that it is difficult for the MPO, as planners, to get some of the data they need. While there is some data sharing in the area, it is not occurring at the level that the MPO would prefer. The interviewee conveyed that there is information collected in the area that has not been shared by the local governments, but added that the increase of ITS and other regional projects presents an opportunity for an improvement in this area. The official did propose, however, that a federal requirement providing for the sharing of data with MPOs might be more beneficial than federally mandating that everyday M&O activities be included in the planning process. Assuring that MPOs have access to the data they need to do analyses is necessary if the inclusion of M&O in the planning process is a federal objective. This would assist the MPOs greatly in performing pre- and post-project evaluations.

The MPO representative also conceded that DMAMPO has not requested some data being collected in the region that the local governments would most likely provide. DMAMPO personnel are spread very thin, despite having expanded from two to nine employees in the past decade. Preparation of documents such as the UPWP, TIP, and RTP are now just a small part of the MPO's total responsibilities.

- The DMAMPO is at the forefront of discussions to expand the uses of video surveillance equipment.

Video surveillance cameras are being installed by the City of Des Moines at intersections in the northwest part of the city. This is a major step for the metropolitan area as this is its first deployment of video technology. While initially it will be used for incident detection and management, the MPO is leading the discussions to expand its uses. The CCTV cameras will be helpful in collecting data, including vehicle mix and turning movement data, understanding traffic patterns at certain points in the day, and data to apply to other system operations and planning functions. The DMAMPO has also been involved in discussions with the Iowa DOT regarding the installation of surveillance cameras on the interstate system. The DMAMPO is again emphasizing that the equipment can be used to show how traffic operates and to provide information on traffic patterns, in addition to the incident management uses that the Iowa DOT anticipates employing.

Iowa DOT

- Iowa DOT personnel utilize a great variety of system operations data to assist with their management decisions.

There are much data at the Iowa DOT's disposal to assist in making management decisions about the transportation system, particularly with regard to investments on the highway system. The Iowa DOT collects accident data, vehicle delay data, site analysis data, and pavement condition ratings, which is part of the Iowa DOT's Pavement Management System (PMS).

- Pavement Management System data is one Iowa DOT source being incorporated into the metropolitan planning process.

An extensive PMS database exists on the Iowa DOT central office mainframe system. As part of the PMS, Iowa DOT planners calculate the useful life of pavement based on environmental factors, road composition (aggregates), surface and sub-surface conditions, historical information, and other database information. Iowa DOT planners display the useful life of road segments in their pavement condition ratings. The Iowa DOT management uses these ratings to make decisions on which road segment will be eligible for major or minor construction projects under the Surface Transportation Program (STP) funds. This data is shared with the MPO, who is incorporating it into the STP selection process. The Iowa DOT interviewee noted that some local governments have bought into a PMS classification system through the MPO process. The interviewee did not believe, however, that any of the governments had used the PMS data collected in making their local management decisions, thus far.

- Operations data is extracted from the PMS database to prioritize the Iowa DOT's maintenance activities.

The Iowa DOT representative reported that the PMS database is heavily laden with operations-related data. The agency's Des Moines area maintenance engineer uses the database to develop the "3R" (rehabilitation, resurfacing, restoring) program, which is used to establish the agency's priorities each year from a maintenance standpoint.

- The availability of good data is not a problem for the Iowa DOT's planners and the Des Moines District Office is looking to expand and share this information.

Traffic count information is collected by the Iowa DOT on a four-year cycle and on an as needed basis. These special counts are performed in April and October of each year. There is a traffic technician available at the Iowa DOT's Des Moines transportation center to collect information on vehicle delays at intersections, examine site distance issues, and generally collect data for decisions that are made at the transportation center. The representative further stated that the agency's planners do a good job using data to assess the District's needs and added that there is often more data than there is time to analyze it.

The Iowa DOT's Des Moines transportation center will soon be adding a traffic engineer to its staff. The traffic engineer will enable the agency to access better information for making management decisions about the transportation system. Additionally, the engineer will provide information to local governments and will work with the local governments on signal coordination issues, as well.

MTA

- AVL technology deployed by the MTA is seen as a potential source of data and information that can be applied to multiple modes and to improve operations and planning functions.

Similar to discussions surrounding the use of video surveillance equipment in the metropolitan area, the DMAMPO official reported that data from the MTA's AVL system could be used for more than its present uses. A project included in the next UPWP will task DMAMPO staff to work with the MTA, utilizing the agencies' respective GIS skills and AVL data to improve transit planning. Sixty percent of the MTA's buses and all 22 paratransit vehicles are now equipped with AVL. The installation of AVL equipment on the remaining revenue vehicles is an MTA priority.

Not much data is currently being shared between the MTA and the other agencies. The MTA uses the AVL system to track vehicle locations, but this system also provides the agency with various other data. The AVL system generates the fleet net program (computer aided dispatch), payroll inventory, and vehicle diagnostic data. AVL data is also used to do performance checks on fixed routes, often in conjunction with customer complaints, to provide verification of reported delays. The MTA also collects semi-annual ridership counts and customer service surveys that are likewise major sources of information for the transit agency.

- The lack of resources available to provide analysis and to make decisions based upon the data being generated is the biggest data problem the MTA faces.

The MTA respondent emphasized that the volume of data being produced is not a concern at the MTA. The interviewee identified that the agency could benefit from before and after route rescheduling data, but sufficient staff resources to do such an analysis are not currently available. In addition, the MTA does not possess the software packages necessary to perform many planning applications to assist the MTA in improving future operations.

- Opportunities exist for improved data sharing between the MTA and the MPO.

The MPO official reported that getting the MTA to share data with the MPO for regional planning purposes has been a barrier for the DMAMPO to overcome. The DMAMPO has been able to build some confidence with the MTA general manager and the MPO respondent believes the DMAMPO will be more successful incorporating transit data into systems issues within the next couple of years. The MPO official added that the jobs access "reverse commute" (Welfare-to-Work) part of TEA-21 is also helping to incorporate transit data into the regional transportation system. The DMAMPO, MTA, and other stakeholders cooperate on this issue.

Committees

Committees created by the Iowa DOT and through the MPO process have provided forums for M&O related issues to be addressed, although no committees exist specifically to examine M&O

issues or impacts. This section will examine which committees have been responsible for increasing M&O discussions in the Des Moines Metropolitan Area.

- ITS Deployment Committee

The DMAMPO-sponsored ITS Deployment Committee has an objective of implementing the ITS Strategic Plan's recommendations. Committee participants include police, fire, emergency medical services, airport, transit, freight interests, highway patrol, local governments, and the Iowa DOT. M&O issues pertaining to recommendations in the plan are discussed. The plan's recommendations include a regional traffic management center (TMC), traveler information, inter-jurisdictional traffic signal coordination, service patrols expansion, and public transportation improvements. While M&O issues are discussed, the MPO representative concluded that developing traffic diversion strategies for the I-235 Reconstruction Project will compel the ITS Deployment Committee to further examine M&O issues.

- Transportation Technical Committee

The MPO's Transportation Technical Committee addresses M&O concerns at its meetings. The committee consists of public works staff, traffic engineers, city engineers, state DOT, and the MTA.

- DMAMPO Policy Committee

An MPO official cited the DMAMPO Policy Committee as having been successful in connecting issues such as jobs access, transit, land use, and ITS by getting parties together in the same room and by forming active sub-committees. While M&O issues are not usually discussed through the Policy Committee, the Policy Committee members look very closely at and usually follow the DMAMPO Technical Committee recommendations, including those related to operational issues.

- Iowa Congestion Management System Group

The Iowa DOT sponsors the statewide Iowa Congestion Management System Group, which is working toward development of a rudimentary CMS plan for the state. The CMS will consider travel demand management and operational management strategies to improve the performance of existing and future transportation facilities. As part of its work, the CMS Group examines travel times throughout the state. This group has representatives from Iowa's three TMAs.

- Traffic Management Committee

Traffic Management Committee participants includes local governments, emergency response agencies, the local FHWA division office, DMAMPO, and the Iowa DOT-Des Moines Maintenance personnel. This committee is an expansion of the Incident Management Committee, which was established by the Iowa DOT's Maintenance Department staff. The Committee has expanded its agenda, and now discusses M&O issues beyond incident management. Committee members still discuss coordinating response to incidents on the

freeway system, but are now also involved with formulating traffic management strategies for special events and are working towards establishment of a state funded highway helper program for the freeway system. An association of retired state police patrolmen provides the area's only current highway helper services.

- I-235 Steering Committee

Members of the Iowa DOT-created I-235 Steering Committee anticipate increased M&O discussion as the reconstruction project moves into the construction phase. Area respondents concur that the I-235 Reconstruction Project has been a catalyst in promoting regional thinking, communication, and coordination as it has involved elected officials, the City of Des Moines, the Iowa DOT, DMAMPO, and other key agencies. All parties seem to agree that the project will benefit the entire region. The DMAMPO and the Iowa DOT representatives asserted that the project would accelerate M&O discussion during the next few years, as at least one lane of I-235 will be restricted for prolonged periods, necessitating better management of the surrounding system. The I-235 project has driven discussions for a multi-jurisdictional TMC. The TMC will be relied upon heavily during the six-year (2001-2006) project reconstruction period. The MPO is a member of the Steering Committee and participates on a number of the six sub-committees.

- Metro Trails Committee

The Metro Trails Committee coordinates bike and pedestrian trails in the metropolitan area. An MTA representative reported that M&O issues are sometimes addressed through this committee, but added that most of the DMAMPO's involvement with the committee has been on the capital side of the projects, and not related to M&O of the projects or the trail system.

Federal Requirements

The transportation professionals interviewed from this metropolitan area were asked their opinions regarding the value of federal requirements to make M&O consideration part of the metropolitan planning process. As part of this inquiry, these interviewees also commented on any review, if any, that should be required.

- Require some level of M&O review if M&O is a federal objective.

The MPO and the Iowa DOT interviewees both stated that there should be more planning for M&O in the metropolitan area and that the Federal Government should, in the least case, do more to encourage the incorporation of M&O in the metropolitan planning process. They both agreed that a federal M&O requirement makes sense if supporting and promoting M&O is, indeed, a federal objective.

- M&O must be more explicitly discussed and stressed within the next round of planning regulations.

The MPO official interviewed emphasized that although the MPO process has been strengthened through ISTEA and TEA-21 legislation, it is still sometimes difficult for planners to be taken seriously by the engineers of some local and state agencies. The official added that there might be some transportation professionals that feel MPOs lack credibility because they do not actively construct, maintain, or operate any elements of the transportation system. Interviewees from the Iowa DOT and the MPO both reasoned that strongly worded regulations would encourage agencies to examine and plan for the M&O of elements of the transportation system, to fully comply with the metropolitan planning process, and to share data more freely among area agencies. The representative concluded that while it is unfortunate that a requirement is necessary, it might be the best method of assuring that M&O is properly reviewed and analyzed.

The representative from the Iowa DOT maintained that an M&O requirement makes sense because it would be easier for metropolitan areas to obtain M&O funding if the Federal Government requires that it be considered. The respondent suggested that elected officials would be more likely to support on going funding of M&O and not as prone to exclusively supporting capital projects. An area official suggested the use of incentives to encourage the incorporation of M&O in the metropolitan planning process may be as or more effective than mandating legislation. The incentives could be tied to funding. Regardless of the format, area representatives reasoned that a requirement could most likely be accommodated relatively easily in the 2025 RTP process underway.

- Data sharing requirements could also facilitate examinations of M&O.

In lieu of a strongly worded requirement to incorporate M&O into the metropolitan planning process, the MPO representative suggested that a requirement to provide for the sharing of data with MPOs and among other regional agencies would greatly assist in M&O analysis and in pre- and post-project evaluations. Access to data is critical to the MPO's and agencies' ability to manage the area's transportation system.

- Long-term M&O impacts should be considered but not required.

While a transit official stated that long-term M&O impacts should be considered in the planning process, no endorsement of a federal requirement to do so was given. The interviewee suggested that short-range M&O functions should not be part of the regional transportation planning process, as operating agencies are the most familiar with their own agency's short-term operational issues.

Successful Actions

This section examines what positive actions have occurred by public agencies within the metropolitan area to increase or introduce the examination of M&O issues. These successful

actions by a single agency or the region as a whole demonstrate steps that accelerate movement toward the consideration of M&O issues.

1. Despite being a small to mid-sized metropolitan area, the area has successfully expanded the dialogue at MPO and Iowa DOT committees to include M&O.

Both the MPO and the Iowa DOT have brought new participants into committee discussions. The I-235 Reconstruction Project has been used by these agencies as a vehicle to increase the participation levels of the committees, as well as to expand the scope of committee discussions. The forum provided by area committees has led agencies to think about and work towards what is best for the region. Largely through committee discussions, most area agencies have come to realize that M&O of the area's transportation system will be increasingly important in coping with the lengthy reconstruction project and as a method of optimizing the existing infrastructure.

2. MPO has been able to link transportation system management with land use and growth management policies.

The DMAMPO maintains population, housing, employment, school enrollment, and vehicle availability databases for the MPO planning area and by local jurisdiction, by growth study area, by census tract, and by traffic analysis zone. The DMAMPO developed a comprehensive metropolitan land use map through the compilation of local jurisdictions' land use plans to assure that plans are complementary and support a logical and consistent growth strategy for metropolitan area. The land use map serves as a tool with which the MPO is able to identify areas where land uses may negatively impact transportation corridors and identifying where intermodal facilities may be appropriate. The MPO sees the application of TDM and ITS strategies as vehicles to achieve better land use management. The ability for the MPO to expand beyond "traditional" transportation functions to land use and economic development issues has enabled the MPO to examine a greater variety of regional activities and better position staff to be involved with other non-traditional MPO functions such as M&O analysis.

3. Maintenance and operational commitments are signed by applicants receiving STP funding.

STP applicants must sign a document committing their agency to be responsible for the maintenance and operation of funded projects. The document contains a clause which states, "Copies of official endorsement of the proposal from the sponsor to be responsible for the maintenance and operation, the sponsor must provide assurance that it will adequately maintain the completed project for its intended public use for a minimum of 20 years following completion." This clause is evident of the metropolitan area's attempt to be pro-active and ensure that operations and maintenance will be available to support capital improvements.

4. Area transportation planners put trust in the ITS Strategic Plan developers to conform to the National ITS Architecture.

The metropolitan area's 1997 ITS Strategic Plan is consistent with the National ITS Architecture even though the area's transportation planners were not the parties responsible for verifying

conformity. Although none of the interviewees reported that their agencies are using the National Architecture extensively, respondents remarked that the team that developed the ITS Strategic Plan (The Center for Transportation Research and Education at Iowa State University and two contractors) was well versed with the National ITS Architecture's components and federal requirements. Additionally, a consultant hired by the Iowa DOT is nearing completion on a state ITS plan, which is being tied to the National ITS Architecture and to the local ITS plans, including the Des Moines Metropolitan Area ITS Strategic Plan. The regional architecture is being used to direct future multi-agency applications of transit AVL systems, fiber optic communication systems, and traffic signal coordination and control systems. An MTA official noted that the regional architecture is aiding the transit agency in sorting out where system links should occur and in determining which agencies should be responsible for or take the lead with the M&O of these linked systems.

5. Small MPO staff is maximizing its workload capabilities.

The DMAMPO's work in the Des Moines Metropolitan Area is a good indicator of what level of M&O analysis is possible for small MPO staffs. Developing federally mandated planning documents encompasses only a portion of the workload for the nine-person MPO staff. The staff also handles, among other duties, demographic, land use, growth management, and economic development. Although, the MPO has demonstrated that it is capable of coordinating area agencies, collecting data, standardizing analysis methods, and handling other responsibilities, it may not have the resources to perform M&O analysis for each agency.

U.S. DOT Actions

While much of the discussion with the transportation professionals centered on what they have done and what they may do, the interviewees were also asked what actions officials with the U.S. Department of Transportation could take to assist metropolitan areas with their consideration of M&O. The actions could range from meeting training needs, to providing funding, to providing legislation that is both practical and easy to understand. This section reviews those actions requested by the representatives of the transportation agencies from this metropolitan area.

1. Create federal policy that strongly supports M&O consideration

Just as ISTEA and TEA-21 legislation were catalysts to increasing the stature of MPOs in metropolitan transportation planning, the Federal Government must present the O&M issue more strongly and directly to achieve the full intent of the legislation. A federal requirement that spells out the M&O responsibilities of operating agencies and of MPOs would most likely be the best vehicle to accomplish this.

2. Training program on M&O inclusion in the metropolitan planning process

The Federal Government could establish a one or two-day course that gives a broad overview of M&O aspects, how consideration can be applied, and the opportunities that the inclusion of M&O in the planning process brings to metropolitan areas. The Federal Government should

provide training to the agencies that would be responsible for implementing the requirement. It was expressed that staffs' comprehension of the rationale behind any M&O requirement would facilitate and expedite compliance.

3. Detail successful actions for M&O consideration

The Federal Government could inform transportation professionals with mid- to upper-level technical expertise of the best practices for M&O consideration, tools that have been successfully used to analyze M&O impacts, and courses that would be appropriate to learn how to review M&O issues within project development and the planning process. Any educational efforts by the Federal Government regarding M&O should be made available on the Internet. This would allow M&O educational efforts to reach the greatest number of agencies' personnel who would most likely be considering M&O and implementing any federal M&O requirement.